
Summary of Submissions on the 2015 Fixed Service Discussion Document



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General Issues

Q.1+2: Digitisation

The majority of respondents are against mandatory digitisation of all sub-1GHz spectrum.

- Spark proposes a case-by-case basis for digitisation, for example digitisation of STLs but not of bands associated with the provision of rural services (E, I, J).
- Chorus agrees, citing TSO obligations¹ requiring analogue technology, and noting that some digital technology does not provide the same performance as current analogue systems, notably in rural areas.
- TeamTalk also does not want digitisation, pointing out that many analogue services are very robust and are even preferable for sites where limited power is available (e.g. solar-powered sites) and the RBA agrees.
- By contrast, Kordia and Telco2 both argue in favour of mandatory digitisation.

Q.3+4: Minimum spectral efficiency

Respondents are evenly split on this issue.

- 4RF and Tait are in favour of increasing the minimum from one bit to four bits (per second per Hertz). Telco2 is also in favour.
- Spark, TeamTalk, TUANZ, Spectrum Engineering and Chorus are against the proposed increase.
- Two compromise solutions were proposed.
 - First, Kordia and M. Houlihan both suggest a 2 bit per second per Hertz minimum.
 - Second, RHW suggest a tiered approach, with some services subject to a 1-bit minimum, others subject to a 2-bit minimum, and still others subject to a 4-bit minimum.

Q.5-7: Metro site congestion

Further Defined Metropolitan Areas (DMAs)?

- Spark states that it suffers congestion in rural sites and so proposes extending the strict DMA rules to the whole country.
- Most other respondents are opposed to any extension of the existing areas. TUANZ sits in the middle, proposing a location-by-location assessment.

Further DMA rules?

Many respondents did not answer this question.

- However, RHW and M. Houlihan suggested some changes on a band-by-band basis.

¹ Under their TSO agreements with the Crown, Spark and Chorus must ensure that residential local calling remains widely available and affordable.

- Kordia suggested a raft of changes to tighten the rule, considering for example that the current standard for antenna performance is not stringent enough for certain bands (13 and 15 GHz).
- Spectrum Engineering agreed with Kordia on mandatory upgrading of legacy antennas.

Apply to existing licences?

- The majority of respondents who answered this question proposed that the DMA rules should apply only to new licences.
- RHW had a different approach, saying that existing licences that stand in the way of a new licence being created should be forced to change.

Q.8+9: Interference evaluation

- Almost all respondents submitted that the 1dB threshold measurement should be retained.
- Telco2 disagreed, arguing in favour of the C/I method.
- 4RF suggested that the change occur only in DMAs.
- Spectrum Engineering also supported a change to C/I, but also suggested some changes to the current methodology if that was retained. They also referred to work previously carried out on this subject on behalf of RSM.

Q.10: Adjacent channel interference

- Most respondents (TeamTalk, Tait, 4RF, RHW, Kordia) considered that the Frequency Dependent Rejection values were appropriate.
- A minority (TUANZ, Chorus, M. Houlihan) strongly disagreed, particularly at lower modulation rates, and provided proposed new values.
- Spectrum Engineering suggested that the Ministry review the values but did not suggest how.

Q.11: Equipment standards above 1 GHz

- Most respondents agreed that the Ministry should implement equipment standards.
- Spark was the exception, arguing that New Zealand is too small a market for a NZ-specific standard.

Q.12: Necessary bandwidth

- M. Houlihan, Chorus, TeamTalk, TUANZ and RHW agree in principle with adjusting the general licensing conditions, but propose to do so by referencing the ITU-R F1191 recommendation.
- Telco2 agrees that adjustment should take place but does not say how.
- Tait and Kordia consider it is not an issue.
- 4RF considers it is only an issue in bands above 2GHz.

Q.13: Inaccurate licence information

- Telco2 is the only respondent to have considered inaccurate information to be a significant issue, and suggests more auditing of the work of ARCs and AREs.
- Kordia and TeamTalk agree that, if there is an issue, more auditing is the correct response.
- Orion doubts that there is an issue.
- Spectrum Engineering notes that some antenna information is missing.

Q.14+15: Transition to management rights regime

- Most respondents argued against transitioning fixed link spectrum to the management rights regime.
- Kordia however submitted that this idea was “worthy of discussion”, and that if a transition did occur, then the spectrum user should be the manager.

Q.16: Channel widths

- RHW, Tait, Spectrum Engineering, TeamTalk, Telco2 and Chorus agreed that the Ministry should apply consistent channel sizes across specified frequency ranges.
- Telco2 added the rider that this should be done using ITU plans, and Spectrum Engineering noted that there may be significant issues in transitioning.
- M. Houlihan argued that consistent channel sizes should apply, but only for new channels.
- Orion, 4RF and Kordia wanted no change.

Q.17: Band renaming

- The majority of respondents agreed that numbers should replace letters to describe fixed-service link frequency bands, as a way of removing confusion.
- TeamTalk disagreed, arguing that a change could actually increase confusion.
- Kordia and 4RF also disagreed.

Band-specific issues

Q.18-23: STLs

- TeamTalk, M. Houlihan, P Comm, Orion, RHW and 4RF want digitised STL links to be permitted, but not mandated.
- TUANZ wants digitisation, where it is more efficient.
- Telco2 says there should be no STL-specific bands.
- TeamTalk suggest a minimum link distance of 5km should be specified for STLs under 1GHz.
- RBA suggest no change.
- RHW suggest specifying a maximum receive level rather than a minimum link distance.
- TeamTalk and RHW agree that no new dual mono services should be allowed.
- The RBA disagrees, arguing that dual mono STLs are required to maintain adequate performance.
- TeamTalk, RHW and Spark agree with the proposal for more efficient spectrum use (500 kHz and 250 kHz channels).
- RBA disagree, arguing that such decisions should be left to the broadcasters.
- Spark agreed that STLs should be limited.
- TeamTalk agreed, but only at congested sites.
- P Comm suggested an audit of sites is necessary.
- RBA was against STL limits.
- Spark suggested a three-year timeframe for STL changes.
- Other respondents did not comment on how the Ministry should manage the timing and introduction of any changes to STL services.

Q.24: EE Band (165 MHz)

- Orion, TUANZ, Tait and RHW submitted that there are no issues with the EE Band.
- TeamTalk want fixed services taken out of the EE band, to provide more capacity for land mobile. Chorus noted that a number of TSO services depend on the EE band.

Q.25: I band (420 MHz)

- Telco2, TeamTalk and RHW agree that the Ministry should offer 100 kHz channels, as does TUANZ as long as there is no impact on existing services.
- 4RF thinks the 100 KHz channels are unworkable, as the band is busy and equipment is already available to achieve good data rates in the band. Tait agrees, citing the high use of the band.
- Chorus notes that a number of TSO services depend on the I band.

Q.26: J band (465 MHz)

Answers to this question are identical to the answers for I band.

Q.27: JL band (445 MHz)

- TeamTalk, Orion, Chorus, TUANZ, Tait and RHW consider that there are no issues with this band.
- However, Telco2 suggests that the Ministry raise the spectral efficiency.

Q.28: KK band (800 MHz)

- Spark comments that future international PPDR uses are being considered for this band, so are wary of change.
- RHW submits that narrower channels need to be offered in this band.
- Telco2 thinks the Ministry should raise the spectral efficiency.
- Chorus, TeamTalk, Tait, TUANZ, 4RF are not aware of any issues.

Q.29: L band (1500 MHz)

- Spark mentions that this is an agenda item for RWC15, as a possible mobile cellular allocation.
- RHW note that it's the only fixed-services band for high data rates and has been dominated by larger players, frustrating RHW. It also believes that the band should be used for high-throughput SCADA networks.
- 4RF and TUANZ submit that the Ministry should consider the band's use for LTE after RWC 15.
- TVNZ asks that the Ministry note that satellite earth stations use L-band.
- TeamTalk propose its use for long-haul point-to-point linking, and expect it to become available when CMAR is eventually decommissioned.
- Chorus suggests deferring any decision until the TSO negotiations with the government have been completed.

Q.30: 5 GHz band

- TUANZ and Kordia see no issues with the 5GHz fixed services band.
- 4RF note that there is use of the top of the band for PPDR internationally.
- Spark, TeamTalk and 4RF express opposition to moving this band into the management rights regime.
- TeamTalk and M. Houlihan both raise the issue of N+1 designation, the former saying it should be reviewed and the latter saying it should be removed.
- Telco2 complains that the current rules unfairly favour the predominant licence holder.

Q.31: P band (4 GHz)

- Telco2 foresee a move away from C band satellite, meaning fewer coordination issues for P band.
- RHW claim that P band has been underutilised and therefore defaults to satellite downlinks.

Q.32+33: R band (lower 6 GHz)

- TeamTalk, Vodafone, RHW agree that the Ministry should adopt 28 MHz channelling in the R band.
- TUANZ agrees, but only if it does not cause unnecessary costs.
- Chorus agrees in principle, but asks that costs be taken into account.
- Kordia disagrees.
- M. Houlihan says that adopting 28 MHz channelling would be a huge job, but the Ministry should allow aggregation of channels.
- Spark submits that the Ministry should realign the R band in accordance ITU-R F383.
- Respondents were split in their views on whether 28MHz channelling, if adopted, should apply only to new licences or also to existing licences.

Q.34-36: T-band (Upper 6 GHz)

- Spark and Kordia think that the N+1 designation is still required for efficient use of T-band.
- M. Houlihan, RHW, Telco2, TUANZ, TeamTalk and Chorus disagree, wanting it removed.
- All respondents who answered Q.35 agreed that redundant TA channels should be removed from the channel plan for the T-band.
- Only Telco2 submitted that the Ministry should rechannel the T band to 14 MHz links, although TeamTalk think the issue deserves to be investigated.
- Chorus and Spark believe the T band should be retained at 40 and also offer 80 MHz channels.
- Other respondents are happy with the status quo.

Q.37-38: V band (lower 7 GHz)

- Chorus submitted that new 56 MHz channels V23A and V23A# should be created.
- TeamTalk, TUANZ and Telco2 said that it should be considered. Their submissions say that coexistence with TVOB channels should be on a “non-interference” basis.
- Spark said that creating the new channels would be difficult.
- M. Houlihan, TVNZ and Kordia submitted against creating the channels, because of the itinerant nature of television broadcasting and the amount of work it would involve.
- Telco2 agrees that existing demand for TVOB channels in V band can be accommodated on other TVOB bands. TVNZ and Kordia disagree.
- M. Houlihan argues for a general review of TVOB channels.

Q.39-43: U, W and Y bands (7 & 8 GHz)

- Spark state that U-band is congested and they expect demand to grow.
- Telco2 and Chorus agree that there will be increased demand, especially (according to Chorus) in rural areas.
- Kordia asks that the Ministry have DMA rules for the whole country for U-band.
- TUANZ simply notes that this band is critical for rural linking.
- Kordia argues that the Ministry should keep the current arrangements for W-band in place.
- Chorus, RHW, TUANZ, Vodafone, Telco2 and TeamTalk support 28 MHz rechanneling, with 56 MHz channelling on top. Spark says that, if W-band is rechanneled, it should be into 28 and 56 MHz only.
- M. Houlihan supports rechanneling, but notes that it would be very expensive.
- Re Questions 41-42, Kordia, RHW, TUANZ, Telco2, TeamTalk, Chorus and M. Houlihan agree that Yx channels should be disestablished in Y-band.
- Other respondents had no comment.
- Kordia, TUANZ, Telco2, TeamTalk, Chorus also agree that Y-band should have additional 56MHz allocation added to the YxA 28 MHz channel plan, but M. Houlihan and RHW disagree.
- Both sides acknowledge that only one additional 56MHz channel would be created.
- TUANZ, Telco2, TeamTalk, and Chorus support realignment to match ITU-R F.386.
- Kordia and RHW agree, but add that this needs to be tied in to rechanneling.
- M. Houlihan says that more analysis needs to be undertaken, as W band may need to be rechanneled.

Q.44-45: H band (10.5 GHz)

- Kordia, RHW, TeamTalk and M. Houlihan agree that the Ministry should offer a 14 MHz channel plan for H band.
- Spark appears to support this.
- Telco2 argues that the Ministry should disestablish the H-band altogether. Hence only Telco2 agrees that the band should be reallocated to a different service, although M. Houlihan and Spectrum Engineering recommend looking at the relevant ITU-R recommendation (ITU-R F.747).

Q.46-48: Z band (11 GHz)

- Spark, Vodafone, Telco2 and TeamTalk agree that the Z band should be changed to 28 MHz channels.
- Kordia, RHW, TUANZ, Chorus and M. Houlihan disagree, most arguing in favour of adding an 80 MHz channel overlay as well.
- Assuming the Z band is changed, Spark, Telco2, Kordia, and TeamTalk agree that the Ministry should also adopt a 56 MHz plan. Spark, TeamTalk and Kordia agree incumbent licensees should be required to transition to the new band plan.
- Spark says the transition should happen now, TeamTalk says in 5 years, Kordia says in 10 years.
- The other respondents disagree.
- Chorus, RHW and TUANZ simply reinforce their opposition to changing the Z band.
- As a final point, not directly related to the questions posed in the consultation document, Spectrum Engineering suggests rationalising the interleave band for Z band. However, they note that there is significant use of the Z band and that rationalisation may cause disruption.

Q.49: G band (15 GHz)

- On issues with the current band plan for G band, only Spark was aware of any, and it argued for 56 MHz channelling.

Q.50: X band (13 GHz)

- Telco2 and Vodafone agree the Ministry should introduce an additional 56 MHz channel to the X band.
- TeamTalk agree, subject to “geographic restrictions”.
- Chorus, TVNZ, TUANZ, Kordia and Spark propose that the interference between the Ku satellite band and the X band should be confirmed and checked before any change takes place.

Q.51-52: 18 and 23 GHz bands

- Telco2 agree that the Ministry should facilitate the development of satellite services in the Ka satellite band by considering early clearance in the 18 and 23 GHz bands.
- TUANZ says this should be considered, but not at this stage.
- TeamTalk, RHW, Chorus and Kordia submit that the Ministry should not consider such early clearance.
- Kordia, Vodafone, Telco2 agree that the Ministry should remove the underutilised 3.5 and 7 MHz channels from the 23 GHz channel plan.
- Spark argues for removal of some of the channels.
- M. Houlihan submits that the Ministry should remove only the 3.5 MHz channels.
- TeamTalk says to close the band to new entrants, but leave the channels as is.

Q.53: 38 GHz band

No respondents saw any issues in the 38 GHz band.

Q.54: 70-80 GHz band

- Telco2 agree that the Ministry should move the licensing regime for the 70-80 GHz band to a management rights system.
- Kordia disagrees and wants to keep the current set up.
- M. Houlihan and Spark say wait until WRC 2015 is complete.
- TeamTalk says to keep a watching brief on this area.
- TUANZ and TeamTalk say no change is needed at this time.
- RHW support the OFCOM approach – splitting the band in half and revisiting in five years.